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the same throughout, and the temperature at the highest level would be the same as below." Density could not be the same, for the air is compressible. Finally, a student may wonder at the apparent accuracy with which downpours of rain are measured in all kinds of places, when he sees, for instance, that in a rainstorm lasting "0.0083" hours it rained at a rate of 480 mm. per hour (p. 216).

The volume will probably be of greatest value as a reference accompaniment to a well-ordered course in meteorology. As a reference book for the advanced student, however, it is lacking in footnotes or bibliography; but it offsets this with its wealth of tables computed only with difficulty, and of illustrations and diagrams drawn from valuable, inaccessible sources.

Charles F. Brooks
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Cancer, Its Cause and Treatment. II. Volume. By L. Duncan Bulkley. New York, Paul B. Hoeber. 1917.

The author believes, as he explained in his preceding book and as he further elaborates in the second volume, that cancer is essentially excessive intake of animal proteid which is a constitutional disease, due to a faulty nitrogen metabolism. He maintains that it is an excessive intake of animal proteid which is responsible for the great prevalence of cancer. There are additional factors in the etiology of cancer, but they are of relatively minor importance. In the second volume the author records in greater detail his investigations into urinary and blood changes in cancer and some results of his treatment which consists essentially in a vegetarian diet aided by a certain cathartic. In addition the author accepts the views of Ross, according to which cancer is due to a lack of balance in particular mineral salts of the body, especially in the salts of potassium. Dr. Bulkley finds the conclusions of Ross confirmed in his own practise, in which he noticed that a prescription containing potassium acetate gave eminently satisfactory results in the treatment of cancer.

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THE VANISHING INDIAN

The progress of miscegenation among many of the Indian tribes has progressed to a degree that is surprising even to those who for many years have been studying the Indian. While the total number of "Indians" as recorded by the census increases from decade to decade, the fact is that this increase is due wholly to that of mixed bloods; the full-bloods of pure strain are in most localities rapidly disappearing and in a considerable proportion of the tribes have become actually extinct or are on the point of extinction.

Two remarkable examples of this fact have just been experienced by the writer. For years a growing necessity in American Anthropology has been to determine the physical type of the Shawnee, once a large tribe and one of considerable historic importance. No great difficulty was apprehended in this task, as the tribe is still well represented. The most promising part of the tribe was that of the so-called "absentee" Shawnee, on the Shawnee Agency in eastern Oklahoma. They count 569 individuals, quite a few of whom are generally regarded as "full-bloods."

Due to a grant of $100 from the Committee of One Hundred on Research of the American Association for the Advancement of Science, the writer was able to visit the tribe during the early part of August of this year. To his great disappointment the task of finding some pure-bloods became exceedingly difficult. Quite a few of the Indians were found to be "full-bloods," but on inquiry into the family history it was generally learned that the subject was a mixture of Shawnee with the Oneida, Delaware, Creeks, or some other tribe. In conclusion, there were found but three individuals who so far as they or their friends knew were full-blood Shawnee. Two of these were old women and one an old man, all near or over 70 years of age, and two of the three were sister and brother.

The next tribe visited were the Kickapoo, the main body of which to the number of 211 is settled about McLoud, Oklahoma. They were said by the old Shawnee to be practically

the same people with themselves, having at some time in the past had but one camp-fire, and it was generally believed that they would show some full-bloods of pure strain. This proved to be a vain hope. On close inquiry all sorts of mixtures were discovered, even among the oldest men and women of the tribe, but no pure-bloods. Only one single woman of middle age was believed to be possibly a full Kickapoo, but there was no real certainty. Some visiting Kickapoo from Mexico proved no better than the rest, and no hope was given that any pure strain Kickapoo could be found anywhere else.

Thus two tribes, one of which was of considerable importance, may be regarded as lost to science, so far as pure-bloods are concerned. Only a few years ago according to local information there were still a number of old men and women living in both tribes who represented the pure strain. The genuine Indian is rapidly passing away and the work of the anthropologist who endeavors to record the physical type of the various tribes is becoming increasingly difficult.

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ON A SUDDEN OUTBREAK OF COTTON RUST IN TEXAS

IN June 10, 1917, the attention of the writer was called to an outbreak of cotton rust. The specimens were first collected at Mercedes and Edinberg, Texas. A review of the literature seemingly showed that in the United States, the cotton was supposed to be free from rust. The Experiment Station Literature however refers to cotton rust which is not a true rust, but various leaf spots caused by *Pseudomonas malvacearum* E. S. and *Glomerella gossypii* (South.) Edg.

Symptoms.—The disease is characterized by circular spots which vary from one tenth to one quarter of an inch in diameter. The spots, however, are often much larger in size when they appear singly and become considerably smaller when many of them occur on the same leaf. The æcia are found to be thickly studded on the spots of the upper part of the leaf. The æcia are typical of all rusts of this type, and when mature the spores are liberated by the least wind or touch, forming a yellow powder on the leaf. The spores readily germinate in water, showing that the rust is a heterœcious species. This same observation was also substantiated by Dr. J. C. Arthur, under correspondence dated July 2, 1917. The disease seems to attack the lower leaves first and especially plants which are well developed and on which cotton bolls have attained considerable size. The area of the present infection was found to begin at about four miles west of San Fordyce on the Rio Grande, running east about thirty-five miles and extending north and south about fifteen miles. In the Mission Sharyland district the approximate acres devoted to cotton are about 500, while further East several thousands of acres have been put to cotton this season. There were few patches in that area which were not affected with rust. About two or three miles north of Mission the first outbreak was reported from the ranch of Mr. Charles Brodgen. Soon other ranchmen reported similar outbreaks of cotton rust. The first infection was noticed immediately after a long rainy spell which lasted about three weeks. The rain consisted of short showers, which kept the air very humid. The disease was more serious on older patches and where irrigation was resorted to. Where irrigation and cultivation was slightly neglected infection was found to be very mild. In the same field in those plants which were most protected from either wind or by a top growth infection was heaviest on the lower leaves. Cotton which was planted very close and those plants in the field which made the heaviest growth were also found to be most affected. While infection is confined to the lower leaves, the disease may also be found on the bracts of the bolls. Careful observation so far has not disclosed it on the stem of the cotton plant.

It does not seem probable that this rust has prevailed to any serious extent in the Cotton States before. Some of the oldest cotton growers of Hidalgo County of Texas claim that from their experience of nearly fifty years